The St. Croix Waterway Recreation Area
1982 Archaeological Survey

by

Patricia Allen

No. 3

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NEW BRUNSWICK HISTORICAL AND CULTURAL RESOURCES

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ISBN 0-88838-328-2

1983

published by
Archaeology Branch
Dept. of Historical and Cultural Resources
P.O. Box 6000
Fredericton, New Brunswick
Canada E3B 5H1

publié par
La Section De l'Archéologie
Ministère Des Ressources Historiques et Culturelles
C.P. 6000
Fredericton, Nouveau-Brunswick
Canada E3B 5H1

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ABSTRACT

During the summer months of 1982, an archaeological survey was conducted in the Chiputneticook Lakes area of southwestern New Brunswick. These lakes and the St. Croix River are a portion of the St. Croix Waterway that has been designated by the Lieutenant-Governor in Council as a Recreation area. Prior to any public promotion of the Waterway area, the Archaeology Branch of the Department of Historical and Cultural Resources felt it was necessary to undertake an assessment of the archaeological resources in the area.

In eight weeks a two person crew surveyed the shores of North Lake, First Eel Lake, Second Eel Lake, Grand Lake, Mud Lake and a small portion of Spednic Lake. The St. Croix River was also "spot" checked between St. Croix and Grand Falls. The probability of finding intact archaeological sites in the area was much reduced by the presence of substantial dams at Forest City and St. Croix.

Only eight sites were found during the survey. Of these five were assessed as "totally lost" due to submergence and erosion. The remaining three sites, all on Spednic Lake were judged to have some intact portion remaining. One of the sites, BjDu4, was salvaged from an exposed beach area during October of 1982. BjDu17 is a small late ceramic period site at the mouth of Diggity Stream and BkDw-5 is a portion of a middle to late Ceramic period site located at the mouth of Mud Lake Stream. It is recommended that these two sites be excavated as soon as possible and that archaeological survey work continue in the St. Croix Waterway Recreation area.

ACKNOWLEDGEMENTS

The 1982 St. Croix Waterway survey was a joint project sponsored by New Brunswick's Community Improvement Corporation and the Archaeology Branch of the Department of Historical and Cultural Resources. Without financial assistance from the former and the personnel contribution of the la ter, the survey could not have taken place.

The principal land owner within the survey area was the Georgia-Pacific Corporation. On behalf of the province I would like to thank Georgia-Pacific for the permission to trespass on their land in search of archaeological sites. I would also like to thank the local Georgia-Pacific representatives, James McClintock, the district manager, and Kenneth Downey the area roads supervisor. Their cooperation and assistance was greatly appreciated.

Throughout the survey period a number of individuals made special contributions to the survey team and their work. John and Jean Gaskin of North Lake are warmly thanked for their fine hospitality. Mr. and Mrs. Sawyer of Mud Lake Stream and Mr. and Mrs. Brewster of Star Island are thanked for the permission to trespass on their lands. Mr. Harry "Bud" Lounder is thanked for his cooperation and information. Thanks are also extended to Joan and Larry Day of Palfrey Lake Lodge for their hospitality and equipment rentals and to Henry Lounder for his information concerning the St. Croix River.

Special thanks are extended to Mr. Bliss Goodwin of McAdam and to Raymond and Margaret Lounder of St. Croix. These persons contributed information that can only be gained through years of exploring with a

natural appreciation for a particular area. The donation of the Goodwin and Lounder collections will provide students and archaeologists alike with a better understanding of the area's past.

The survey team would also like to extend their appreciation to all those persons who offered friendly assistance during the sometimes discouraging day to day survey. Among both the permanent residents and the "summer people", hospitality appeared to be the rule. Thanks to people like Toby we felt totally at home on the Chiputneticook Lakes.

Finally, I would like to thank my survey partner for her general assistance and overall tolerance during the survey project. In the face of scorching heat, daily five to ten mile paddling excursions and "no" sites, a better personality could not have been found.

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INTRODUCTION

During the past two years the economy of southwestern New Brunswick has faltered due to the closeur of the Georgia-Pacific plywood mill in McAdam and the Texas Steel Company in St. Stephen. In response to these hard economic times the province, by order of the Lieutenant-Governor in Council, has designated a large segment of western New Brunswick waterways as a Recreation Area. The area is officially described as: "The Waterway along the St. Croix River from St. Croix to St. Stephen, New Brunswick. The area of the waterway is bounded by the International Boundary in the River to 200 feet from the highwater mark along the River. The "Waterway Recreational Area" is officially delineated by the point where this route intersects Bull Brook as it enters North Lake; and then Northwesterly along the highwater mark on the shore of North Lake across Hay Brook on North Lake and thereafter southward along the International Boundary through Grand Lake and Spednic Lake to Vanceboro; and thence easterly along Route 4 to the Village of McAdam and then northward along the Canadian Pacific Railways line to Canterbury" (Province of New Brunswick, Order in Council 16328), (Figure 1).

The basic goal of the St. Croix Waterway Recreation Area is to encourage tourism based on the area's natural resources while at the same time offering protection for their future. The project also wishes to protect and promote awareness of New Brunswick heritage.

The St. Croix River and the lakes from which it flows have long been known to produce Indian relics. Over the past forty or fifty years private individuals from the communities of McAdam, St. Croix, Vanceboro

and elsewhere have amassed large artifact collections from the shores of Spednic Lake. The artifacts gathered by Raymond and Margaret Lounder, Bliss Goodwin, Henry Lounder, Harry "Bud" Lounder and others suggest that this waterway saw considerable prehistoric use. One specific collection dug by a Mr. Crocker, indicates that at least one Archaic period cemetery had existed in the area (Sanger 1975:66).

Since heritage had been identified as a component of the St. Croix Waterway Recreation development, the state of this area's archaeological resources needed to be examined. As promotion of the Recreation Area intensifies, it will become increasingly important to be able to identify areas of archaeological concern. In response to this need during the summer of 1982 with financial assistance from the Community Improvement Corporation, the Archaeology Branch of Historical and Cultural Resources conducted an eight week survey in a portion of the St. Croix Waterway Recreation Area.

THE STUDY AREA

Although the shores of First Eel Lake and the upper reaches of the Eel River were examined during the 1982 survey the major emphasis of the study was conducted within the designated St. Croix Waterway Recreation Area (Figure 1). The survey was accomplished with ccoperation and assistance from Georgia-Pacific Corporation, the major land holder within the designated area.

According to Rowe (1972) the St. Croix Waterway Recreation Area lies within the Southern Uplands sector of the Acadian Forest Region. This is a rugged upland area having a pronounced hardwood forest character

and an lengthy fire history. On well-drained hilltops sugar maple, beech and yellow birch predominate while at lower elevations these species are mixed with red maple, white birch, balsam fir, red spruce, eastern white pine, and eastern hemlock. Only in lowland areas or valleys do the conifers such as spruce, pine and fir prevail. In swamps stands of eastern white cedar, black ash, red spruce and red maple occur. Black spruce and tamarack dwell on the acid peat substrata of other low areas (Rowe 1972:125).

The topography of the area is "hilly to mountainous with extensive areas over 1,000 feet in altitude... the bedrock is mainly Precambrian and Palaeozoic strata intruded by granites... Surface materials are variable textured glacial drift, mostly sandy and stony loams to clay loams (Rowe 1972:125). The forest floor of the region is undulating and littered with large granite boulders.

The hilly, rocky terrain surrounding the Chiputneticook Lakes is sparsely populated and here wildlife thrives. Especially plentiful larger animals are the white tailed deer, moose and bear while muskrats, porcupine, beaver, squirrels and rabbits also abound. Ruffed grouse and woodcock are easily taken upland game birds, while a variety of water fowl are available from the marshy areas surrounding the lakes. Birds of prey such as the bald eagle and osprey are frequently sited.

The Chiputneticook Lakes are for the most part fairly shallow - the average depth of Spednic Lake is only 5 m while its maximum depth is about 20 m (Maine Department of Inland Fisheries and Game, Public Information File). This shallow nature when combined with the north/south orientation of the lakes creates extreem wave action even during the slightest storm. As a result the eastern or Canadian shores of the Chiputneticook Lakes suffer greatly from erosion.

The lakes are moderately warm (21°-23°c) during the summer months and provide an excellent habitat for warm water game fish. Salmon, smallmouth bass, chain pickerel, white perch, yellow perch, lake whitefish, smelts, eels and some smaller fishes are present in most of the lakes. Salmon and the smallmouth bass attract a considerable number of sport fishermen to the area.

Generally speaking the Chiputneticook Lakes have few approachable beaches. Shorelines are mostly strewn with large boulders (Figure 3). Headlands are generally composed of partially submerged boulder reefs with wide boulder beaches. Spednic Lake, although generally similar to Grand and the smaller lakes, seems to have a somewhat more hospitable character. This lake has more sheltered coves, more islands, more stream inlets, and above all, more approachable beaches and attractive camping locations. The large number of artifacts gathered by private collectors from Spednic Lake attest to the fact that such natural conveniences were taken into account in prehistoric times (Sanger 1975:66).

One major environmental factor to be considered when examining the Chiputneticook Lakes system is the artificial lake levels. During most of the 20th century the water levels of the lakes have been controlled to aid the forest industry. With higher water levels logs could easily be "driven" along the waterway. For this purpose dams were built at Forest City at the outlet of Grand Lake, at Mud Lake Falls between Grand and Spednic Lakes and at St. Croix where Spednic Lake funnels into the St. Croix river. Major dams presently located on the St. Croix River are at Grand Falls, Woodland and Milltown (Figure 2). In Spednic Lake "under the State of Maine law, and apparently sanctioned by the International Joint Commission, the Georgia-Pacific Corporation has permission to control

the water level between a minimum allowable elevation of 371.6 and a maximum of 386.0 feet a.s.l." (Atlantic Resource Planners 1974:14).

Environmentally the effects of the high water can be seen in the relatively new swamps that have been created around the mouths of Hay, Bull and Monument Brooks on North Lake, in Cattail Cove and Pattersons Cove on Grand Lake and in the marshes of Diggity and Palfrey Streams on Spednic Lake. Large water saturated tree stumps stand amongst the bull rushes as stark reminders of what once was. In the late fall of the year former land masses emerge as the lake levels are dropped towards their minimum allowable elevation (Figure 4).

THE SURVEY

The 1982 survey of the St. Croix Waterway Recreation area was conducted by a two person survey crew, Beth Armstrong, an experienced archaeological field assistant and myself. The survey was accomplished with the aid of an 18' canoe and a rented pick-up truck. The greater portion of the work was conducted from a base camp on North Lake while the remainder of the survey was conducted from camps on Spednic Lake and the St. Croix River.

Chiputneticook is the traditional Indian name for the lake chain which forms a portion of the international boundary between Maine and southwestern New Brunswick. During July and August approximately half the Chiputneticook lakes were examined for archaeological sites. The Canadian shorelines of North Lake, Mud Lake and Grand Lake were completely surveyed while Second Eel Lake was partially inspected (Figure 2). A preliminary "spot check" survey of several locations on

Spednic Lake and on the St. Croix River from Vanceboro to Grand Falls was also conducted. The daily routine of the survey crew involved walking and/or canoeing a specific segment of lakeshore in search of sites.

During most of the survey elevated lake levels generally presented a bare boulder beach backed by a low and narrow treed bank which was then backed by a cedar swamp. When present, bank edges and exposed beaches were closely examined. Also when possible forest areas adjacent to the shoreline were checked.

When a site was located it was recorded on a Maritime Archaeological Resource Inventory form and on the appropriate 1:50,000 scale topographic map. Each site was then photographed with both Polaroid and 35 mm cameras. The Polaroid photo was attached to the MARI survey form. Following field identification each site received a Bordon number.

Site Descriptions

A total of eight sites were located during the 1982 archaeological survey of the St. Croix Waterway Recreation Area. Table 1 summarizes the locational data on the sites. Following the table individual site descriptions and evaluations are presented.

Table 1, St. Croix Waterway Recreation Area, Site Location Data

Bordon No.	Site Name	Latitude	Longitude	Military Grid Reference
BiDu1	Horse Island	45°21'50"	67°25'00"	226243
BjDu4	Diggity Stream	45°36'50"	67°26'40"	213523
BjDu16	Palfrey Point	45°38'05"	67°28'40"	186544
BkDu1	Red Rock	45°40'35"	67°29'45"	171590
BkDu5	Silas Shore	45°40'30"	67°29'10"	178588
BkDw5	Mud Lake Stream	45°41'05"	67°43'30"	993596
BkDw6	Little Beach	45°46'55"	67°48'05"	932705
BjDu17	Diggity Beach	45°46'57"	67°26'43"	212524

BiDul

This site is located on the east bank of the St. Croix River about 1.5 km south of the Canoose River confluence and opposite the mid-section of Horse Island (Figure 2). The river bank at this location is covered with a mixture of coniferous trees. One flake was found on a narrow silt/pebble beach which lay adjacent a two meter high eroding bank edge. No additional material was found in the bank edges and the site appears to have been totally washed away.

BjDul6

The Palfrey Point site is located on the southeastern tip of Upper Palfrey Neck which separates Palfrey Lake from Silas Cove on Spednic Lake. The tip of Upper Palfrey Neck is partially cleared and partially overgrown with a mixed forest. One small, partially grooved and water worn gouge was found near the water line during a low lake level period.

The gouge had a maximum length of 102 mm, a maximum width of 31 mm and a thickness of 19 mm. The length of the channel is 84 mm while the maximum depth of the same is 3 mm. The bit width is 30 mm (Figure 16 a). Such a small size for this type of artifact is not particularily common in New Brunswick, however, similar gouges occur in late Archaic period context in coastal Maine (Bruce Bourque, personal communication).

No additional material was found on the beach or in the eroding bank edges. The site appears to have been completely washed away.

BkDu1

The Red Rock site lies on the west shore and at the north end of Palfrey Lake opposite Star Island (Figure 2). The bank edge at this site is very low and supports a mixture of tangled cedar and spruce trees. A sand/boulder beach of slight incline lies adjacent the bank. Two flakes were found near the water line at this location. No other signs of habitation were found in the bank or in the forest floor behind the beach. The site was assessed as having been totally washed away.

BkDu5

The Silas site is located on the eastern shore of the north end of Palfrey Lake approximately 200 m south of Star Island (Figure 2). The bank edge at this location is covered with a mixed forest and the narrow beach is composed of large cobbles and boulders. Amongst the boulders and near the waterline were found two water worn ground stone axes.

BkDu5:100 is a water worn pecked and ground stone axe manufactured from a hard, dark green rock. The specimen is biconvex in cross and longitudinal section and the polished bit is symmetrical. A couple of small wear chips marr the bit edge. The axe is 152 mm long, 52 mm wide and 27 mm thick (Figure 16c).

BkDu5:101 is also a well water worn pecked and ground axe having a slightly grooved band running across the ventral side at a point some 75 mm from the bit end. The butt of the specimen is unaltered and rectangular in cross section. The axe is 143 mm long, 58 mm wide and 31 mm thick (Figure 16d).

Both specimens are reminiscent of Archaic period axes (Sanger 1974). Unfortunately the site appears totally eroded.

BkDw6

The Little Beach site lies on the eastern shore of Grand Lake between Blueberry Point and Spruce Point. The site is located approximately half way between the international boundary markers "York" and No. "36". The heavily eroded bank edge is undercut and covered by a tangled mass of cedar and spruce trees.

The narrow cobble beach at this site produced four flakes and one core fragment while a well water worn gouge was picked from the water near the beach. The gouge is 156 mm long, 36 mm wide and 24 mm thick. The partial channel runs 85 mm from the bit and is 9 mm deep. The specimen has a convex bit edge and a pointed butt (Figure 16e). Partially grooved gouges are generally attributed to the late Archaic period (Sanger 1974).

Although bank edges were thoroughly checked and the undulating forest floor was shovel tested, no additional finds were made. The site was assessed as having been totally eroded.

BjDu4

The Diggity Beach site lies approximately 200 m north of the mouth of Diggity stream on the southeast shore of Spednic Lake (Figures 2 , 22). The wide boulder/sand beach is backed by a low bank and a mixture of cedar and spruce trees (Figure 5). Behind the beach the forest floor is undulating and strewn with large boulders.

During the initial survey a few flakes, two axes and a water-worn gouge were surface collected from a 40 m wide section of beach. A subsequent examination of the much expanded beach in mid-October revealed a small area where a thin, often broken, humus layer lay partially covered by coarse sand. The humus area would appear to be a section of the former forest floor which had somehow evaded erosion and survived the fluctuating lake levels. Recent disturbance to this layer had exposed a number of flakes and scrapers.

Excavation

Taking advantage of the low October lake levels, the Archaeology Branch of Historical and Cultural Resources spent two days excavating the remains of the Diggity Beach site. A one square meter grid was lain over the exposed humus area and approximately parallel to the lake edge. The one meter squares were excavated by trowel to a maximum depth of the humus layer (Figure 6, 7).

The humus area containing cultural materials was found to be approximately six by nine meters. Within this, a smaller area of about three by four meters produced a number of flakes and scrapers as well as a small hearth pit containing calcined bones, flakes, scrapers, a biface tip and charcoal (Figures 7, 8). Approximately 10 m north of this area, a concen tion of fire cracked rocks, the remains of perhaps another hearth, lay completely exposed on a small patch of charcoal stained beach (Figure 9). By the completion of two days work, the cultural humus layer at the Diggity Beach site had been completely excavated.

Artifact analysis

The artifacts surface collected from the lower beach cannot be directly tied to the excavated humus area of the Diggity Beach site. In comparing the two areas, the very nature of the artifacts themselves suggest that perhaps this site was occupied sporadically over an extended period and that the remains of an earlier occupation, probably late Archaic, had been completely washed out. Although the washed out artifacts will be described during the following artifact inventory, they will not be included in the interpretation of the excavated Diggity Beach site.

lower beach surface finds

BjDu4:100 is a water worn shallow grooved gouge with a slightly flaring bit. The shallow channel groove follows the broken length of this specimen for 110 mm. The maximum width of the tool is 67 mm. The specimen is manufactured from a light green quartzite (Figure 16h).

BjDu4:101 is a pecked and ground stone axe manufactured from a light green quartzite. The specimen is 159 mm in length, has a maximum width of 55 mm and a maximum thickness of 29 mm. The convex bit is ground and displays several small wear chips. The butt of the specimen is rectangular and its ventral surface is marked with several flake scars (Figure 16b).

BjDu4:102 is a well water worn axe, manufactured from a light green quartzite. The specimen, broken in cross-section, has a maximum length of 99 mm, a maximum width of 50 mm and a maximum thickness of 23mm. Use wear on this specimen is evidenced by a somewhat battered bit edge and a broken battered butt (Figure 16g).

BjDu4:105 is another water worn axe of a light green material. The bit edge is battered and blunt while the butt also appears battered and somewhat squared. Maximum length of the specimen is 106 mm, maximum width is 49 mm and maximum thickness is 10 mm (Figure 16f).

BjDu4:106 is a large oval shaped, unifically chipped tool with a maximum length of 96 mm, a maximum width of 53 mm and a maximum thickness of 19 mm. The opposing lateral edges display steep edge retouch ranging between 50° and 90°. Neither of the opposing ends of the artifact are retouched (Figure 17a).

BjDu4:107 is the base portion of a large biface. The specimen has an average edge angle of 40°, a maximum broken width of 46 mm and a maximum thickness of 7 mm (Figure 17b).

BjDu4:108 is a square base fragment of a small biface (Figure 17c).

excavated finds

As previously noted, most artifacts excavated from the Diggity Beach site came from within a small area of approximately three by four meters. The bulk of the cultural debris recovered from this area was in the form of waste flakes, several hundred in all. A concentration of 17 scrapers or steep edge unifaces was also recovered from this area. Apart from a number of small calcined bone fragments, the only other excavated artifacts were the tip or base portion of a small biface (Figure 17d), an elongated abrasive stone and a chipped/battered cobble. The abrasive stone was a fine grey quartzite cobble that displayed a considerable amount of fine polish on one surface and along one edge. The specimen was 178 mm long by 48 mm wide by 25 mm thick (Figure 17e). The chipped

and battered cobble was 66 mm wide, 147 mm long and perhaps had been a hammerstone (Figure 17f).

The Diggity Beach scrapers would appear to have been manufactured on the site from local materials. The materials from which the scrapers were manufactuered are well represented in the chipping debris. With one fragmented exception, the scrapers are intact (Figure 18). Eleven are rectangular in shape, three are triangular and one is rounded. All but two scrapers have a continuous working edge and thirteen of these are located on distal ends. Two specimens are worked on opposing ends.

The lengths of the scrapers range between 24 mm and 57 mm (mean 33 mm) and their widths vary between 16 mm and 39 mm (mean 28 mm). Although three of the tools have a thickness of greater than 10 mm, the remaining thicknesses are between three and seven mm (mean 7 mm). Individual scraper attributes are summarized on Table 2. For the most part, the Diggity Beach specimens are distal end scrapers that have been manufactured on relatively large, thin, rectangular flakes (Figure 18).

Discussion

While it is not impossible that the scrapers from Diggity Beach were manufactured during Archaic times, a general disinterest in such tools during these times tends to point towards a Ceramic period occupation. Although a couple of the Diggity Beach site scrapers could be termed "thumbnail", the majority of the tools are not of the characteristic small late Ceramic period type (Bourque and Cox 1981, Lahti, Spiess, Hedden, Bradley and Faulkner 1981, Foulkes 1982); but neither are they the large,

thick specimens most commonly associated with the very late Archaic, early Ceramic period of the Maine/Maritimes region (Davis 1978, Foulkes 1982, Bourque personal communication).

With the above thoughts in mind, I would suggest that the humus layer of Diggity Beach was occupied sometime during the middle Ceramic period. If the biface fragment BkDu4:135 (Figure 17d) is indeed a projectile point base, a suggested date of 2200-1700 BP would not be unreasonable for the site (Foulkes 1982, Allen 1981).

The use to which the Diggity Beach camp may have been put is even a more puzzeling question than it's age. The manufacture and use of such a large number of scrapers may indicate that some type of processing may have been carried out at this location. The analysis of the calcined bone fragments from the hearth may, when completed, give some indication of the use of Diggity Beach.

Table 2: Key

For cross section, edge span, edge height and edge angle: a) distal, b) proximal, c) right, d) left

Portion: w - whole, f - fragmentary

Outline: re - rectangular, ro - rounded, tr - triangular

Steep edge retouch: d - distal, o - opposed, dl - distal and left
ao - alternating surfaces opposed

Platform location: d - distal, p - proximal, l - longitudinal

Surface retouch: d - dorsal, v - ventral

Cross section: bc - biconvex, pc - plano concave, bp - biplano
cc - concave/convex, pt - plano/triangular, cxt - convex triangular, pcx - plano/convex, tc - triangular concave, ir - irregular

All attributes: ab - absent, uk - unknown

TABLE 2 : BjDu4, Scraper Attributes

catalogue no.	109	110	118	119	120	121	122	123	124	125	126	127	128	136	137	140	159
portion	w	w	w	w	w	f	w	w	w	w	w	w	w	w	w	w	w
outline	re	re	ro	re	re	uk	tr	tr	re	re	re	re	re	tr	re	tr	re
working edge	c	dc	c	c	dc	c	c	c	c	c	c	c	c	c	c	c	c
steep edge retouch	d	o	dl	d	ao	d	d	d	d	d	d	d	d	d	d	d	d
platform location	uk	d	p	p	uk	uk	uk	l	l	l	p	p	p	p	p	p	p
surface retouch	ab	d	d	ab	ab	uk	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab
other marginal retouch	ab	ab	ab	ab	ab	uk	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab
cross section a)	ct	cc	bp	bc	bp	uk	bp	cc	bp	cc	pcx	cxt	pt	bp	bc	bc	bc
b)	pc	cc	bp	pco	bp	uk	bp	ir	bp	pcx	bp	bp	ct	bp	bp	pcx	cc
c)	pc	cc	bp	pco	bp	uk	bp	bc	bp	bc	bp	bp	ctr	bp	bp	pcx	bc
d)	pt	bp	bp	ir	bp	uk	bp	bc	bp	pcx	bc	cxt	ptr	bp	bc	bc	cc
length (mms)	18	25	33	29	29	uk	45	33	34	29	57	45	35	38	28	26	24
width (mms)	16	24	33	23	27	uk	39	33	29	29	37	25	33	27	29	20	30
thickness (mms)	5	6	5	7	6	uk	14	7	7	6	12	6	12	4	5	3	6
weight (grams)	1.4	5.3	7.7	3.2	6.8	uk	22.8	8.8	6.7	5.8	23.6	5.3	9.0	4.9	4.1	1.6	3.2
edge span a) d	16	23	33	20	23	uk	41	33	28	28	40	18	19	27	28	20	30
b) p	-	19	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-
c) r	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d) l	-	-	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-
edge height a) d	4	5	4	5	5	-	10	3	4	4	4	4	3	3	3	3	3
b) p	-	5	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
c) r	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d) l	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
edge angle a) d	90°	60°	80°	50°	90°	-	60°	70°	80°	80°	70°	80°	60°	50°	80	80°	70°
b) p	-	80°	-	-	70°	-	-	-	-	-	-	-	-	-	-	-	-
c) r	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d) l	-	-	80°	-	-	-	-	-	-	-	-	-	-	-	-	-	-

BjDu17

The Diggity site is located at the southeastern end of Spednic Lake and on the north shore of the mouth of Diggity Stream (Figure 2, 22). The site lies on a fairly level and slightly projecting piece of land that is owned by the Georgia-Pacific Corporation (Figure 10). Only the width of Diggity Stream separates the site from Spednic Lake Provincial Park.

The Diggity site is shaded by several large deciduous trees which surround a small cleared campsite. A historic period stone-lined well occupies a portion of this area. Approximately 20 m inland, the forest floor becomes uneven and is strewn with larger boulders. The forest cover consists of a mixture of cedar and stunted spruce trees. Immediately to the front of the site a narrow sand beach drops sharply to the mouth of Diggity Stream.

Testing

Although a superficial examination of the beach area produced no signs of habitation, Margaret Lounder stated that she had found artifacts at this location. With this in mind, a 1 x 1 m test unit was placed just to one side of the historic well. The unit was excavated by trowel to a depth of approximately 20 cms.

The upper layer of the unit produced a few pieces of scrap iron while the next 10 cms produced two flakes, about 100 body sherds of one ceramic pot and a hearth containing fire cracked rocks. Unfortunately time did not allow for the complete excavation of the hearth and the unit was backfilled to be re-excavated at a later date.

Artifact analysis

Approximately 100 body sherds, representing a single pot were gathered from within and adjacent to the small prehistoric hearth found in TC#1. Although the vast majority of sherds were plain, six fragments were decorated with a cord-wrapped stick (Figure 19a). Unfortunately the interior surfaces of all sherds had defoliated. The buff colored clay was tempered with small pieces of ground granite ranging from one mm to about four mm in diameter. No rim sherds of the vessel were present.

One of the two flakes recovered during the Diggity Site testing had been unifacially retouched along one convex edge. The flake was 85 mm long by 40 mm wide by 9 mm thick (Figure 19b).

Discussion

The use of the cord-wrapped stick decorating tool is generally accepted as a late prehistoric period indicator in the Maine/Maritimes region. Although differences in the quality of the ceramics may occur in these recent times, the use of the cord-wrapped stick appears to be a binding "late" ceramic attribute.

At the mouth of the St. Croix River in the Passamoquoddy Bay area, cord-wrapped stick decorated ceramics tend to occur between 1090 BP and 820 BP (Bourque 1971:201). Along the central Maine coast similarily decorated ceramics occur as late as 640±120 BP (Sanger 1980:21). In the St. John River valley one date from the Fulton Island site suggests this tool may have been utilized as early as 1605±55 BP (Foulkes 1981:60). In northeastern New Brunswick use of the cord-wrapped stick is tentatively

dated as early as 1675±50 BP and as late as 1080±90 (Allen 1982:16).

Although considerable interest has been shown late period coastal sites in Passamoquoddy Bay and along adjacent coastal Maine, (Bourque 1971, Sanger 1971, 1980, Davis 1978, Bishop 1981 and Turnbull 1982) very few late interior sites from the same region have been investigated. The Diggity site, however small, is the only known site from this same period along the St. Croix Waterway. Excavation of this site could provide a significant amount of information towards our current understanding of lifeways during this time period. Any promotion of the St. Croix Waterway can be expected to have a detrimental effect on this small site.

BkDw5

The Mud Lake Stream site is located on a low point of land where the northeastern end of the Mud Lake Stream thoroughfare meets the northwestern end of Spednic Lake (Figure 2). To the immediate north of the point lies a shallow muddy cove, while to the east boulder fields abound in Spednic Lake (Figure 11). The gravel sand beach which borders the site on the southwest is strewn with a number of scattered boulders. Two hundred meters to the west the summer residence of Mr. and Mrs. Sawyer overlooks the quiet cove at the mouth of Mud Lake Stream.

Seven hundred meters northwest of the Sawyer home Mud Lake Falls rushes over a 3-4 m high granite ledge. A portage foot path leads around the Falls and follows along the edge of the shallow rapid stream to a point just west of the Sawyer camps. The area is forested by a mixture of coniferous and deciduous trees.

Fluctuating water levels play a significant role in the environment of BkDw5. While the eastern end of the site is either submerged or a marsh-like area during the spring and summer (Figure 12) it reverts to dry land during the late fall (Figure 13). A few small maple trees shade a slight rise on the western end of the site while the remainder of the point is covered by low grases.

A 1924 International Joint Commission map of this portion of Spednic Lake leads one to believe that a much larger and heavily forested site area existed prior to the installation of a larger dam at St. Croix (Figure 14). The most tangible evidence for this change is reflected in the location of Bench Mark "75". In 1924 this Mark was situated inland approximately 50 m from the end of the point. In 1982 the boulder into which the mark was driven was located in Spednic Lake about 15 m east of the point tip. Archaeologically this loss is reflected in the quantity of stone artifacts gathered from the water and exposed beaches surrounding the present day point. The evidence thus suggests that a large portion of the Mud Lake Stream site has already been lost.

The Mud Lake Stream site was first recorded by David Sanger in 1972 when this and approximately 20 other site locations in Spednic Lake were pin-pointed on maps by local collectors. In 1982 the site was surveyed during the month of August (Figure 12). Very little beach area was exposed at this time, however, some artifacts including a plummet, a biface fragment and a number of flakes were gathered from the water adjacent the marshy point.

Testing

In October the site was revisited. Water levels had dropped considerably (Figure 13). At this time a team of three persons from the Archaeology Branch of Historical and Cultural Resources, Dr. Christopher Turnbull, Patricia Allen and Albert Ferguson, spent one day surface collecting and testing the Mud Lake Stream site. The freshly exposed beach area produced a great quantity of chipping debris and a number and variety of artifacts.

Judging by the distribution of surface materials, the site appeared to extend approximately 100 m west from Bench Mark "75" to the slightly raised area distinguished by a small grove of young maples. Three test units, each one meter square, were placed; 1) on the bank edge near the maple grove, 2) near the low bank edge approximately 15 m east of the first unit and 3) about 10 m east of Bench Mark "75". Each test unit was excavated by trowel to a sterile orange colored subsoil.

The soil profiles varied amongst the units. Unit #1, situated on the edge of the grove, had a thin loam sod layer, followed by a orangish/grey leached zone. The base of the leached zone was quite irregular and ended at depths varying between eight and nineteen cm. A few flakes, a biface fragment and 57 fire-cracked rocks were found within the leached zone.

Unit #2 produced a dark brown to black sod layer resembling peat or bog mud. Beneath this was an orangish/grey to black leached zone followed by an orangish/brown sub-soil (Figure 15). A few pieces of rocker dentate-stamped pottery, over 100 flakes and about

10 fire-cracked rocks were recovered from this 20 cm deep unit.

Unit #3, located on the recently exposed beach, produced a very thin dark brown to black sod layer. Just beneath this the leached zone appeared. This in turn was followed by a sterile orange mud. One flake, a large battered cobble and one piece of fire-cracked rock were recovered from this unit.

The difference in soil profiles between Unit #1 and the other two units can be explained by the recent historical submergence. The marshy area of the site presents an organically rich top soil probably created by the watery death of the former forest vegetation. Within all three units the leached zone immediately underlying the upper levels holds cultural material.

Artifact analysis

Most of the surface finds gathered from the Mud Lake Stream site were found in the water or along the narrow beach adjacent the eroding bank. There seems little doubt that these artifacts were once a portion of the Mud Lake Stream site and that they can be used to reflect the culture history of this location. The following summary describes both the excavated and surface finds from Mud Lake Stream.

projectile points (Figure 20a - e)

Five projectile point bases of three distincitve "types" were found at Mud Lake Stream. All but one of the bases was found on the beach area. The excavated specimen was found within the leached

zone of Unit #1. A summary of the available projectile point attributes is provided on Table 3.

BkDw5:6 is a moderately large straight stemmed point base (Figure 20a). The attributes of this specimen are similar to late Archaic or early Ceramic period points from the Maine/Maritimes area (Davis 1978, Allen 1981, Bourque personal communication). Such points have recently been found at the base of the deeply stratified Oxbow site on the Little Southwest Miramichi River (Allen 1981) as well as at the base of shell midden sites in Passamoquoddy Bay (Davis 1978). All evidence suggests that this was the projectile point form being utilized in New Brunswick when ceramics were introduced.

BkDw5:22 is the base portion of a contracting stemmed or "bipointed" projectile point (Figure 20b). Such point forms have been found on both New Brunswick coastal and interior sites. In Passamaquoddy Bay this "type" of point is generally associated with shell midden sites. Throughout the province contracting stemmed point forms are commonly associated with the middle Ceramic period dating anywhere from 2145 BP to 1675 BP (Pearson 1970, Davis 1978, Allen 1981, Foulkes 1982).

The third "type" of projectile point represented at Mud Lake Stream is distinguished by a corner-notched stem. BkDw5:5 is the most complete specimen of this type, BkDw5:14 is badly water worn and BkDw5:11 is of incomplete manufacture (Figure 20 d, e, c). Throughout the region such notched point forms are considered the most recent "type" of projectile point (Bourque 1971, Burley 1974, Davis 1978, Sanger 1979, Allen 1981, Foulkes 1982). In coastal areas such points readily appear in late period shell midden context in association with cord-wrapped stick decorated ceramics (Bourque 1971, Sanger 1977, Davis 1978).

In New Brunswick the present time frame for these narrow-corner or side-notched points ranges between about 1720 BP and 410 BP (Wilmeth 1978:154).

Table 3: Key

Find location: b - beach, tu - test unit. Stem form: ex - expanding, st - straight, c - contracting. Base form: cx - convex, st - straight, p - pointed. Shoulder form: ra - right angle, as - asymmetric, nr - narrow rounded, wr - wide rounded. Cross section: bc - biconvex. Notch form: s - side, c - probably corner. Unknown - uk. Na - not applicable.

Table 3: BkDw5, Projectile Point Base Attributes

cataloque no.	5	6	11	14	22
find location	b	b	b	b	tu
stem form	ex	st	c	uk	c
base form	cx	st	st	uk	p
shoulder form	na	ra	as	nr	wr
cross section	bc	bc	bc	bc	bc
notch form	c	na	na	c	na
width	19	33	23	22	23
thickness	6	7	5	5	7
neck width	11	19	17	11	na
base width	18	19	16	uk	5
stem length	8	14	3	uk	22
notch width	5	na	na	na	na
notch depth	4	na	na	na	na
illustration	20d	20a	20c	20e	20b

small bifaces

BkDw5:16 is the bit portion of an elongated drill (Figure 201). The specimen has a diamond shaped cross-section which displays edge angles of 80° to 90°. The specimen contracts to a pointed tip which appears crushed. Water action has removed any additional signs of wear.

In New York State drills have been recognized as a part of many different cultural tool kits ranging in time from Middle to Late Archaic, to Transitional and to Middle Woodland times (Ritchie 1969). Drills are not a particularily common tool found in New Brunswick sites. Without a diagnostic hafting element, any temporal placement of this specimen cannot be founded.

BkDw5:10 is a medium sized triangular biface blank. The specimen is manufactured from a banded green and purple siltstone and is 63 mm long, 36 mm wide and 19 mm thick. This biface weighs 35.7 grams (Figure 20n).

BkDw5:15 is the base portion of a 40 mm wide triangular knife. Blade edge angles on this specimen are approximately 50° while the base has been thinned to about 40° (Figure 20o).

BkDw5:17 is a small quartz biface base. One blade edge is unifacially chipped while the other edge and base are bifacially chipped to a 50° angle. An area of cortex remains on one surface of this artifact (Figure 20p).

plummet

BkDw5:1 is a water worn plummet (Figure 20q). It was found on the beach near the slightly raised section of land at the most westerly end of the site. The specimen was manufactured from a light brown sandstone and was chipped into a rectangular shape. The specimen is capped by

a rounded knob that has a narrow "line" groove encircling its base. BkDw5:1 is 73 mm long, 40 mm wide, 21 mm thick and weighs 67.7 grams. Throughout the far Northeast plummets are generally recognized as Archaic period indicators (Sanger 1973, Tuck 1978).

chopper or maul

BkDw5:23 is a large cobble which displays opposing battered ends. The specimen is 190 mm long by 130 mm wide and weighs 1,931 grams. The broadest end of the specimen is heavily crushed (Figure 21).

scrapers

Five scrapers were recovered from the beach area of the Mud Lake Stream Site (Figure 20 f - j). Four of the specimens are intact while one is a distal fragment. All of the specimens are water worn to some extent. A summary of the BkDw5 scraper attributes is presented on Table 4.

BkDw5:9 is the only scraper which may be attributed to a particular time period. This pink chert specimen is nearly as thick as it is wide and weighs 28 grams (Figure 20j). Its dorsal surface is partly cortex while the ventral surface is a smooth plane. The distal working edge angle is 100°. In New Brunswick large chunky scrapers are generally found in Late Archaic/Early Ceramic context (Davis 1978, Turnbull personal communication).

Table 4: Key (same as for Table 2)

Table 4, BkDw5, Scraper Attributes

Catalogue No.	9	7	13	12	8
Portion	w	f	w	w	w
Working Edge	c	c	c	c	c
Steep Edge Retouch	dr	dl	d	d	dl
Cross Section a)	bp	uk	ccx	pcx	pcx
b)	pt	uk	bp	pcx	pcx
c)	bp	uk	bp	pcx	pcx
d)	pt	uk	ccx	bcx	ccx
Length (mm)	35	uk	23	30	23
Width (mm)	28	uk	19	26	22
Thickness (mm)	23	uk	5	10	6
Weights (grams)	28	uk	2	8	4
Edge span d	29	23	19	25	22
p	-	-	-	-	-
r	13	-	-	-	-
l	-	-	-	-	10
Edge height d	21	5	4	4	5
p	-	-	-	-	-
r	15	-	-	-	-
l	-	-	-	-	2
Edge angle d	100°	70°	90°	70°	90°
p	-	-	-	-	-
r	90°	-	-	-	-
l	-	-	-	-	70°
Illustration	20j	20h	20i	20f	20g

pottery

Four small body sherds from one ceramic vessel were found within the leached zone of unit #2. One of the granite tempered sherds is decorated with a rocker dentate stamp (Figure 20m). The decorating tool was approximately 23 mm long, 2 mm wide and possessed 5 rectangular notches per cm of length. In New Brunswick dentate stamped pottery is dated as early as 2640 BP in northeastern New Brunswick, the Miramichi area,and as late as 1060 BP

in the Passamoquoddy Bay area (Allen 1982, Wilmeth 1978).

Discussion

Prior to the raising of water levels in Spednic Lake, the low and relatively level point at the mouth of Mud Lake Stream was no doubt a particularily convenient camping location. Prehistorically one would expect that the route which connects the two major Chiputneticook Lakes would have been well used. The present portage around Mud Lake Falls and Mud Lake Stream appears worn by far more than centuries of use.

Artifacts recovered from the Mud Lake Stream site suggest that this location had been utilized periodically from at least 3600 BP until late prehistoric times. The plummet is most definitely an Archaic period indicator. The straight stemmed projectile point can probably be associated with a Late Archaic or Early Ceramic occupation. The bipointed projectile point and the ceramic sherds would suggest more of a Middle Ceramic period occupation while the notched point forms are even more recent. How much of and what periods of the site have survived remains to be seen.

The 1982 test units suggest that a lengthy section of bank edge contains remains of at least the Middle Ceramic period occupation. Further work on the site could reveal if areas from the earlier or later occupations still remain.

Passamoquoddy Bay is linked directly via the St. Croix River to the Chiputneticook Lakes. Historical documentation suggests that in early historic times the native peoples of southwestern New Brunswick were equally dependent on "winter" interior and "summer" coastal resources (Speck 1940). Recent shell midden studies in the Passamoquoddy Bay area reflect a different view of site settlment and seasonality (Davis 1978, Sanger 1979).

Until this past summer there were no known Ceramic period sites from the St. Croix River or connecting lake system. With the discovery of two Ceramic period sites on Spednic Lake, comparison research can now be undertaken. Mud Lake Stream, the earlier and larger of the two sites, has much to offer concerning the interpretation of prehistory in south-western New Brunswick.

SUMMARY

The results of the 1982 St. Croix survey are not encouraging. Of the eight sites located during the expedition, only three were deemed to have intact portions remaining. One of the three was located on a beach and had been submerged during the greater portion of the year. The other five sites discovered were "spot finds" and upon closer examination were assessed as totally eroded sites. Without a doubt, the loss of these and probably other undetected Chiputneticook Lakes sites is a direct result of damming the lakes during recent historic times.

As per distribution, no sites were located along the headwaters of the Eel River, on First or Second Eel Lakes nor on the Canadian shores of North Lake or Mud Lake. One totally eroded site was located on Grand Lake while another was found near the mid-point of the St. Croix River. The remaining six sites were found on Spednic Lake.

Of the three sites deemed to have intact portions remaining, one was totally excavated and the other two were tested. Diggity Beach (BjDu4) was judged to be an immediate salvage situation and its excavation recovered a small portion of a probable middle Ceramic period site. Mud Lake Stream (BkDw5) and the Diggity site (BjDu17) were tested to reveal

portions of intact middle to late Ceramic period sites.

For the most part the 1982 St. Croix Waterway Recreation Area archaeological survey produced what was expected. The lack of reported finds from Grand and the smaller more northerly lakes corresponds well with the 1982 survey results. Since very little time was spent actually looking for sites on Spednic Lake, the number of sites found on this lake lends credence to the idea that this was by far a more attractive area during prehistoric times. From the shere quantity of reported finds, I would suspect that if survey work continues, Spednic Lake will yield at least a few more sites that have not as yet been totally destroyed.

RECOMMENDATIONS

As a result of the 1982 St. Croix Waterway survey, there are three primary recommendations:

1) The survey work in the St. Croix Waterway Recreation area is by no means complete. At least one and perhaps two years of survey work remain within the designated area. Spednic Lake is known to have produced many artifacts and private collectors have discovered over 20 possible site locations along the shores of this lake and its islands. It is recommended that as soon as possible survey and test excavation work should continue on Spednic Lake. Although a "spot check" survey has been conducted along both the Canadian (Allen 1982) and American (Carlson 1981) banks of the St. Croix River, it is necessary that a thorough survey be undertaken for the entire length of the St. Croix from St. Croix to St. Stephen. Due to the proximity of the International Boundary this particular survey work should be conducted in cooperation with the Maine Historic Preservation Commission.

2) With the development of the Provincial Park opposite the Diggity site and the placement of another locally administered park on McAdam Lake, the increased canoe traffic on Diggity Stream can be expected to have an adverse effect on this small site. In view of its present situation and of the research contribution that could be made by this site, it is strongly recommended that the Diggity Site be excavated as soon as possible.

3) Promotion of canoe travel in the Chiputneticook Lakes can also be expected to funnel additional traffic between Grand and Spednic Lakes along Mud Lake Stream. As the Mud Lake Stream site continues to actively erode due to the fluctuating lake levels, artifacts will continue to wash out of the low bank edges. The availability of such finds at a convenient resting and camping location, makes the site particularily vunerable to relic hunters and "diggers". I would recommend that the Mud Lake Stream site be excavated at the earliest opportunity.

As stated during the introduction to this paper surveys are necessary to identify areas of archaeological concern prior to any promotional development. Following the type of investivations suggested in (2) and (3), both research and the general public can benefit. Archaeologists can have a better understanding of the prehistory and lifeways on the lakes and the general public can be educated about the past through displays or site intrepretation centers.

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Figure 1. Map of St. Croix Waterway Recreation Area

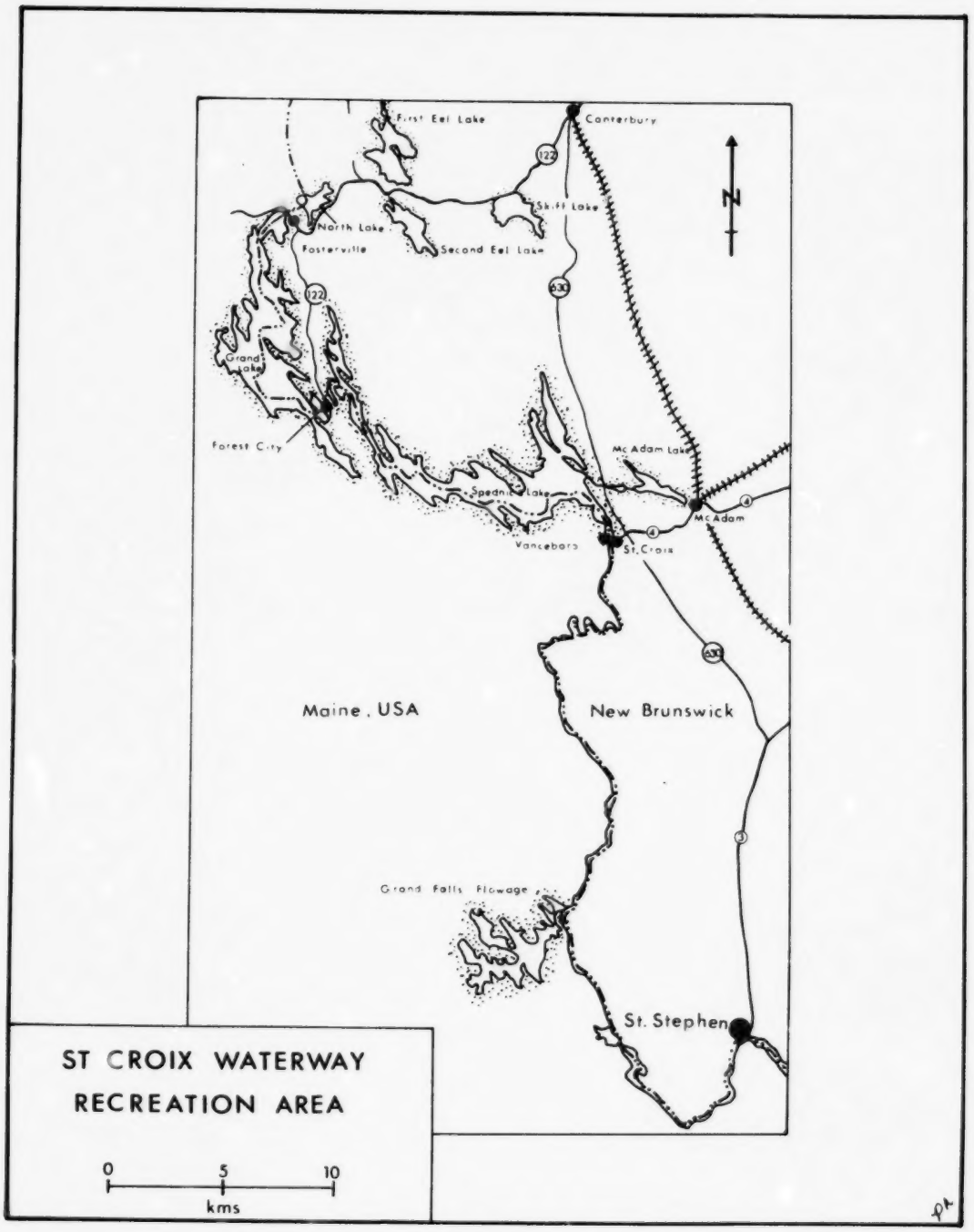

First Eel Lake
Canterbury
122
Skiff Lake
N
North Lake
Fosterville
Second Eel Lake
122
Grand Lake
Forest City
McAdam Lake
Spednic Lake
McAdam
Vanceboro
St. Croix
Maine, USA
New Brunswick
Grand Falls Flowage
St. Stephen
ST CROIX WATERWAY
RECREATION AREA
0
5
10
kms

Figure 2. 1982 Archaeological Survey of the St. Croix Waterway Recreation Area - Site and Dam Locations

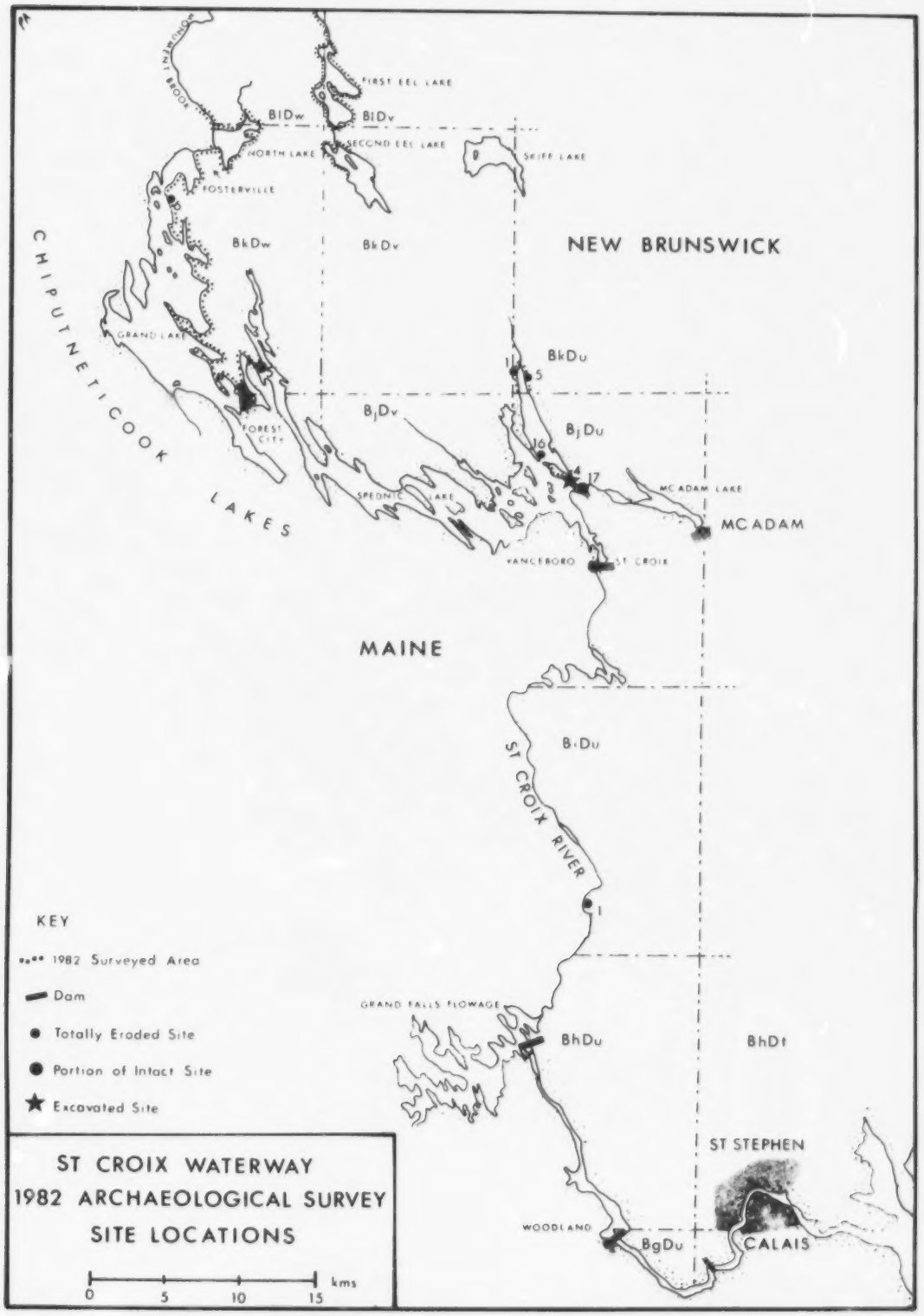

NEW BRUNSWICK
MAINE
CHIPUTNETICOOK LAKES
FIRST EEL LAKE
SECOND EEL LAKE
NORTH LAKE
SKIFF LAKE
FOSTERVILLE
GRAND LAKE
FOREST CITY
SPEDNIC LAKE
MCADAM LAKE
MCADAM
VANCEBORO
ST CROIX
ST CROIX RIVER
GRAND FALLS FLOWAGE
ST STEPHEN
CALAIS
WOODLAND
BlDw
BlDv
BkDw
BkDv
BkDu
BjDv
BjDu
BiDu
BhDu
BhDt
BgDu
KEY
1982 Surveyed Area
Dam
Totally Eroded Site
Portion of Intact Site
Excavated Site
ST CROIX WATERWAY
1982 ARCHAEOLOGICAL SURVEY
SITE LOCATIONS
0
5
10
15
kms

Figure 3. Typical Boulder Beaches on the Grand Lake Shoreline

Figure 4. North End of Palfrey Lake - Former Land Mass Emerging

3.

4.

Figure 5. Looking Southeast Towards the Diggity Beach Site

Figure 6. Looking Northwest At the Excavation Area of the Diggity Beach Site

5.

6.

Figure 7. The Diggity Beach Site Plan - Limits of the Excavation and Artifact Distribution

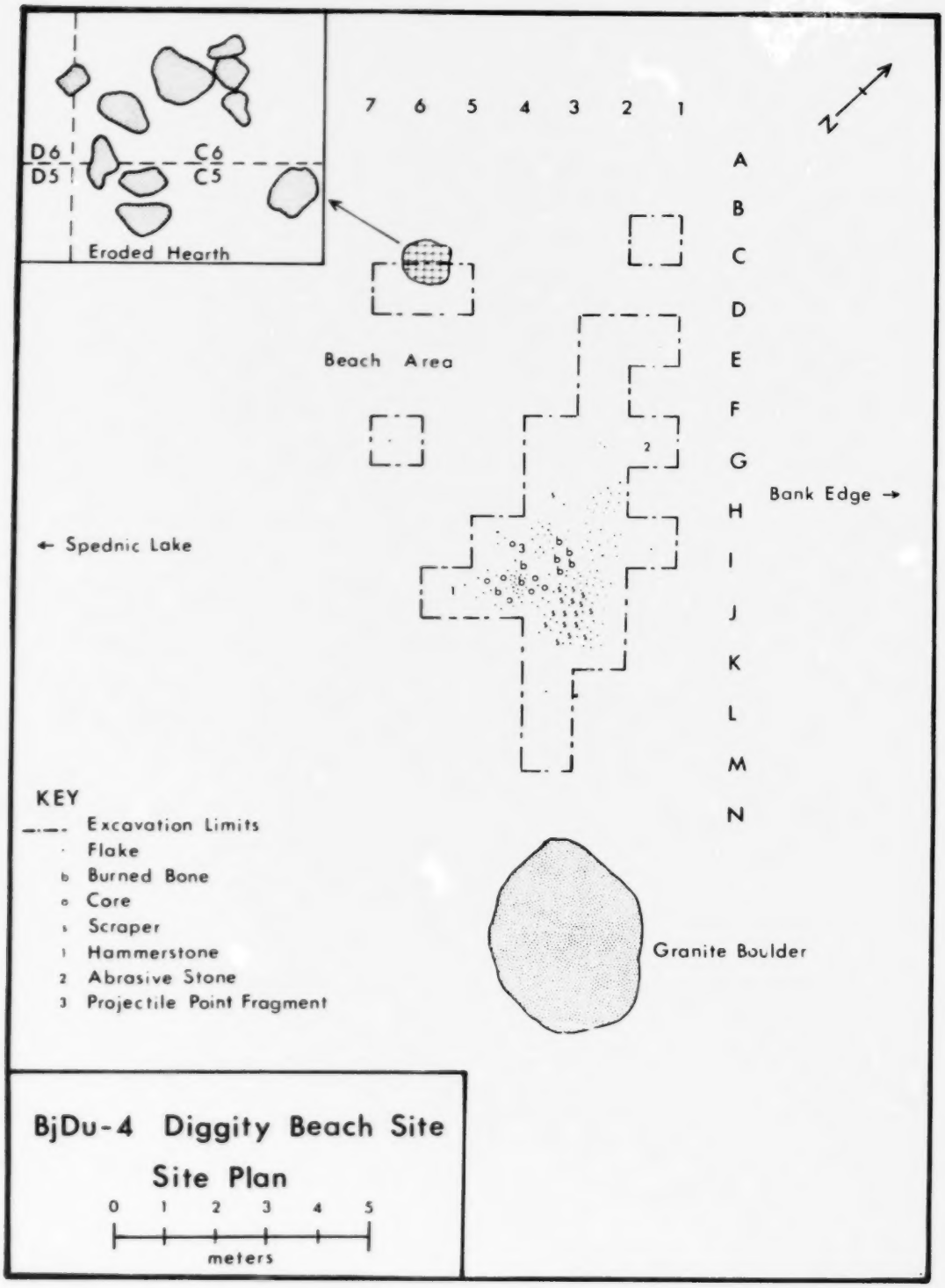
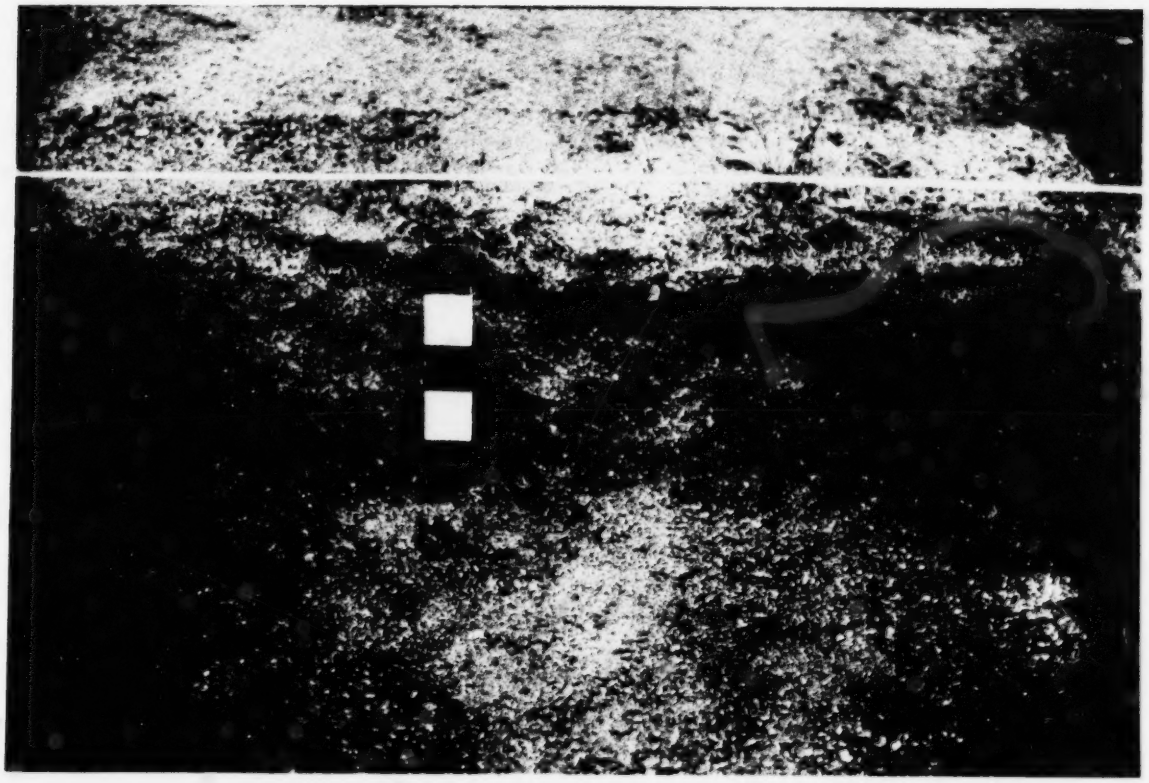

7 6 5 4 3 2 1
A
B
C
D
E
F
G
H
I
J
K
L
M
N
D6
D5
C6
C5
Eroded Hearth
Beach Area
Bank Edge →
← Spednic Lake
KEY
Excavation Limits
Flake
b Burned Bone
o Core
s Scraper
1 Hammerstone
2 Abrasive Stone
3 Projectile Point Fragment
Granite Boulder
BjDu-4 Diggity Beach Site
Site Plan
0 1 2 3 4 5
meters

Figure 8. The Diggity Beach Site - An Excavated Hearth Profile

Figure 9. The Diggity Beach Site - An Eroded Hearth Area

8.

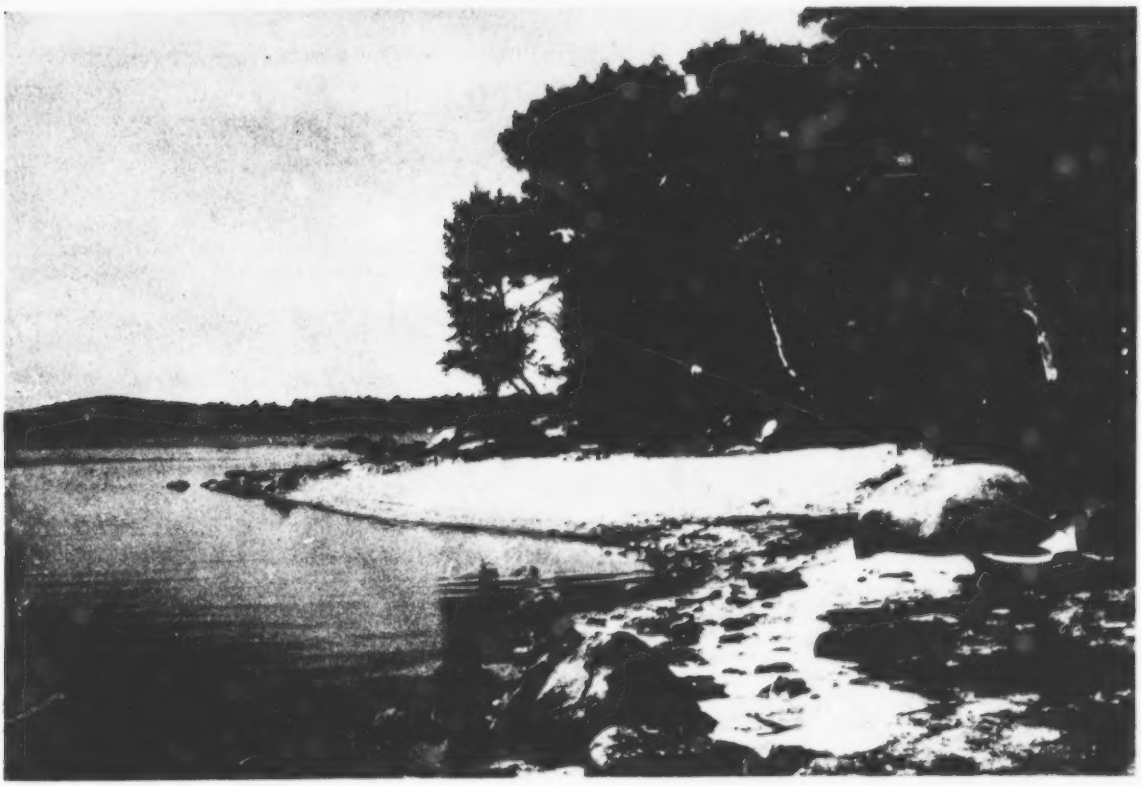


9.

Figure 10. The Diggity Site - Looking Northwest

Figure 11. Aireal Photograph of the Area of the Mud Lake Stream Site

10.



11.

Figure 12. The Mud Lake Stream Site, Looking Northwest, August 1982

Figure 13. The Mud Lake Stream Site, Looking Northwest, October 1982

12.

13.

Figure 14. 1924 International Joint Commission Map, Mud Lake Stream Location

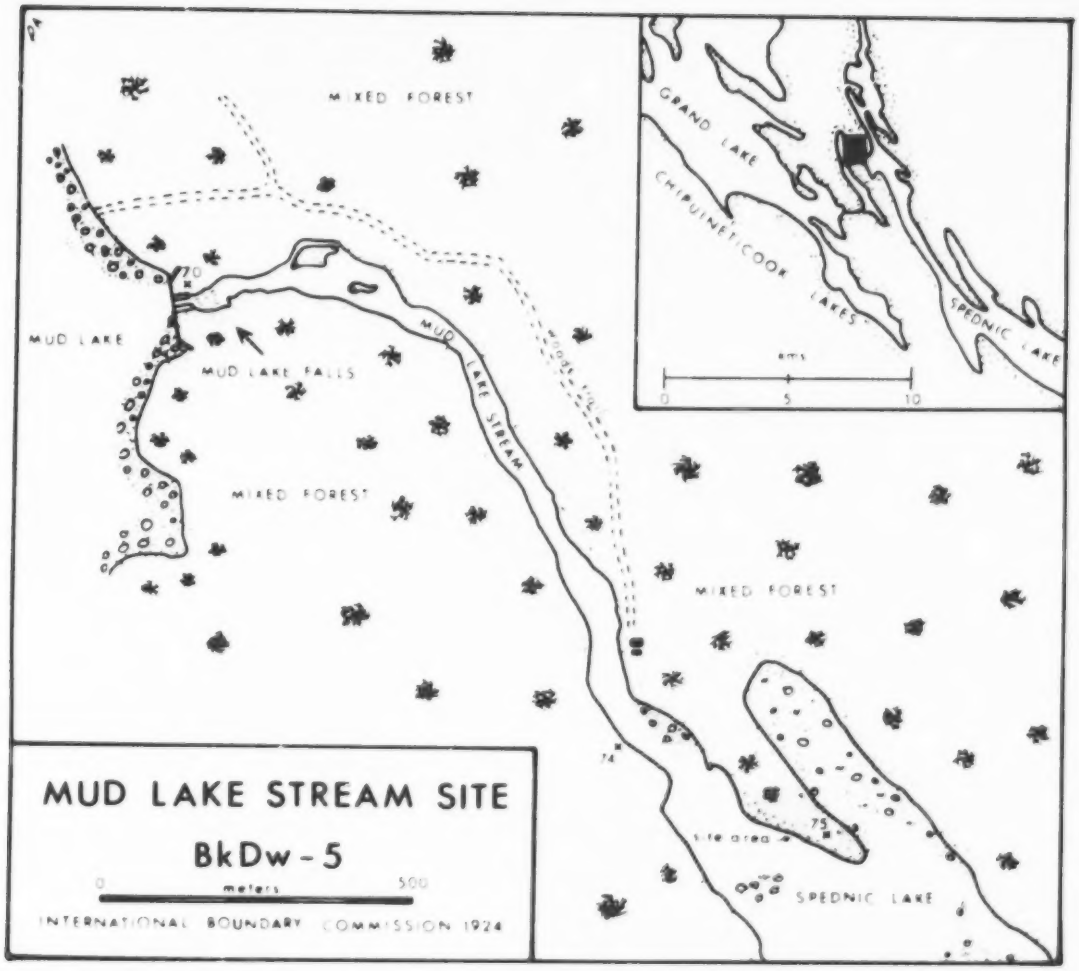

MIXED FOREST
GRAND LAKE
CHIBUINETICOOK LAKES
SPEDNIC LAKE
MUD LAKE
MUD LAKE FALLS
MUD LAKE STREAM
MIXED FOREST
MIXED FOREST
SPEDNIC LAKE
MUD LAKE STREAM SITE
BkDw-5
meters
INTERNATIONAL BOUNDARY COMMISSION 1924

Figure 15. Mud Lake Stream Site - Soil Profile in TC 2

Figure 16. St. Croix Waterway Recreation Area Artifacts - Axes and Gouges

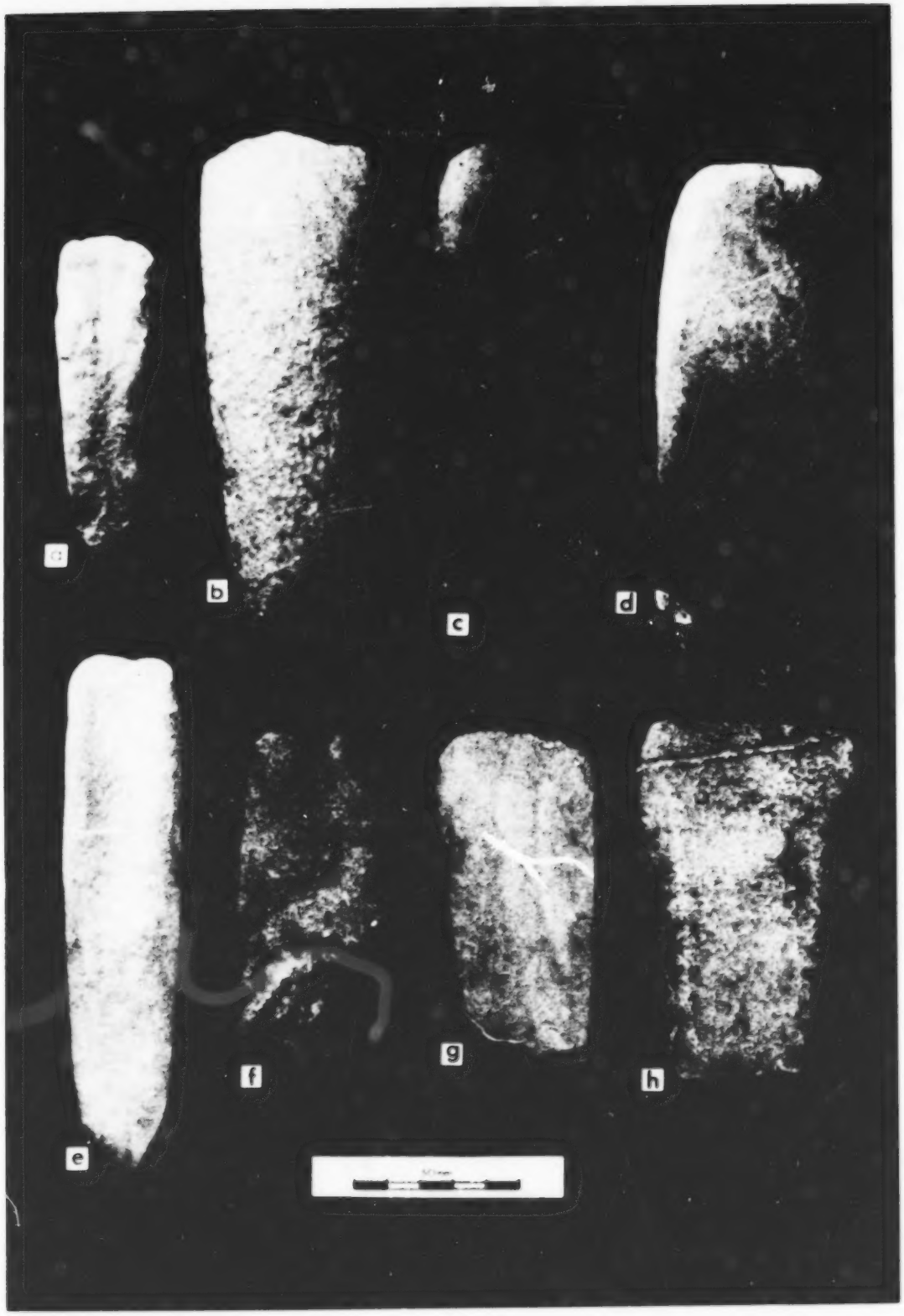

a
b
c
d
e
f
g
h

Figure 17. BjDu4, Diggity Beach Site Artifacts

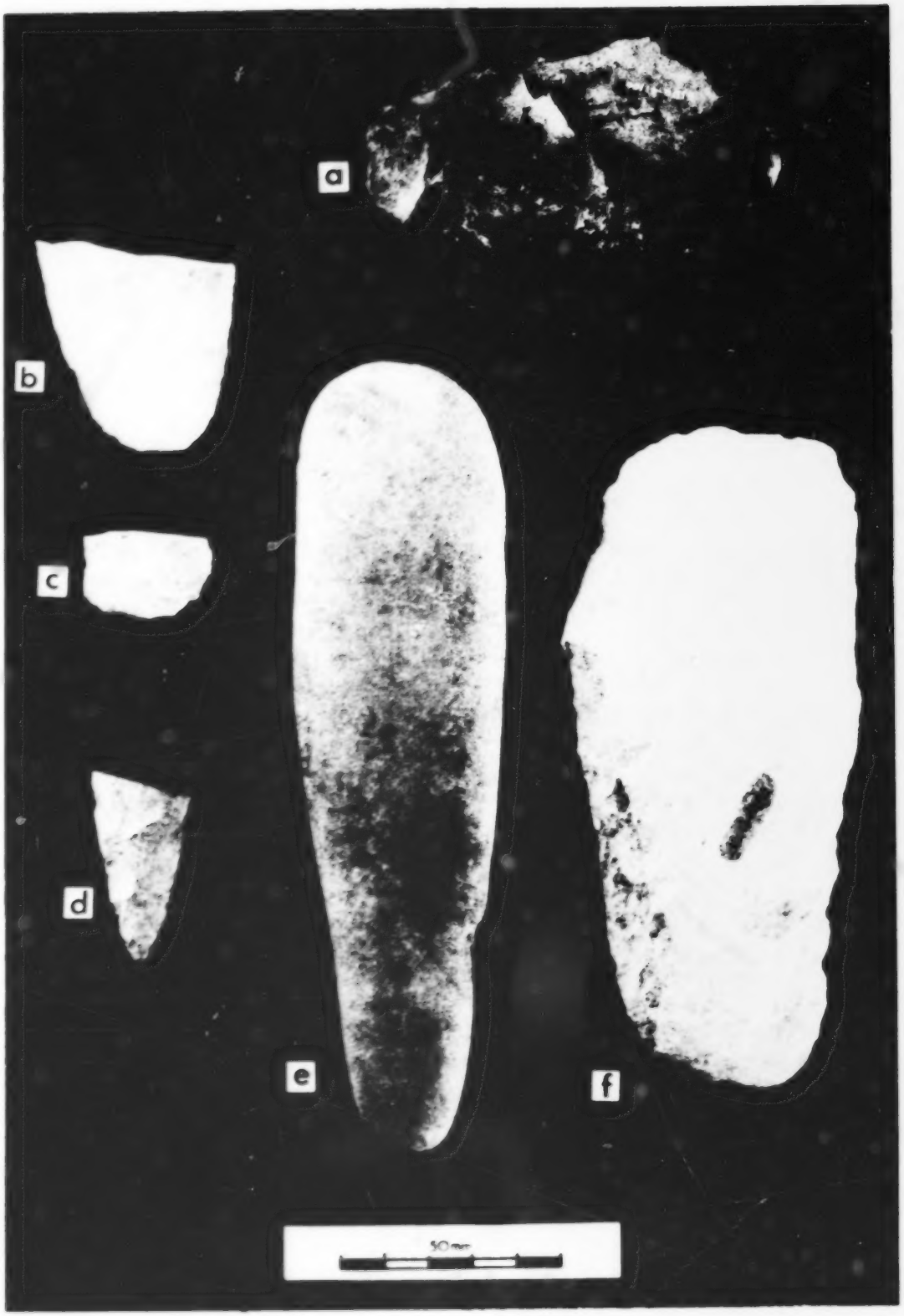

a
b
c
d
e
f
50 mm

Figure 18. BjDu4, Diggity Beach Site - Scrapers

50mm

Figure 19. BjDu17, Diggity Site Pottery Sherds and Used Flake

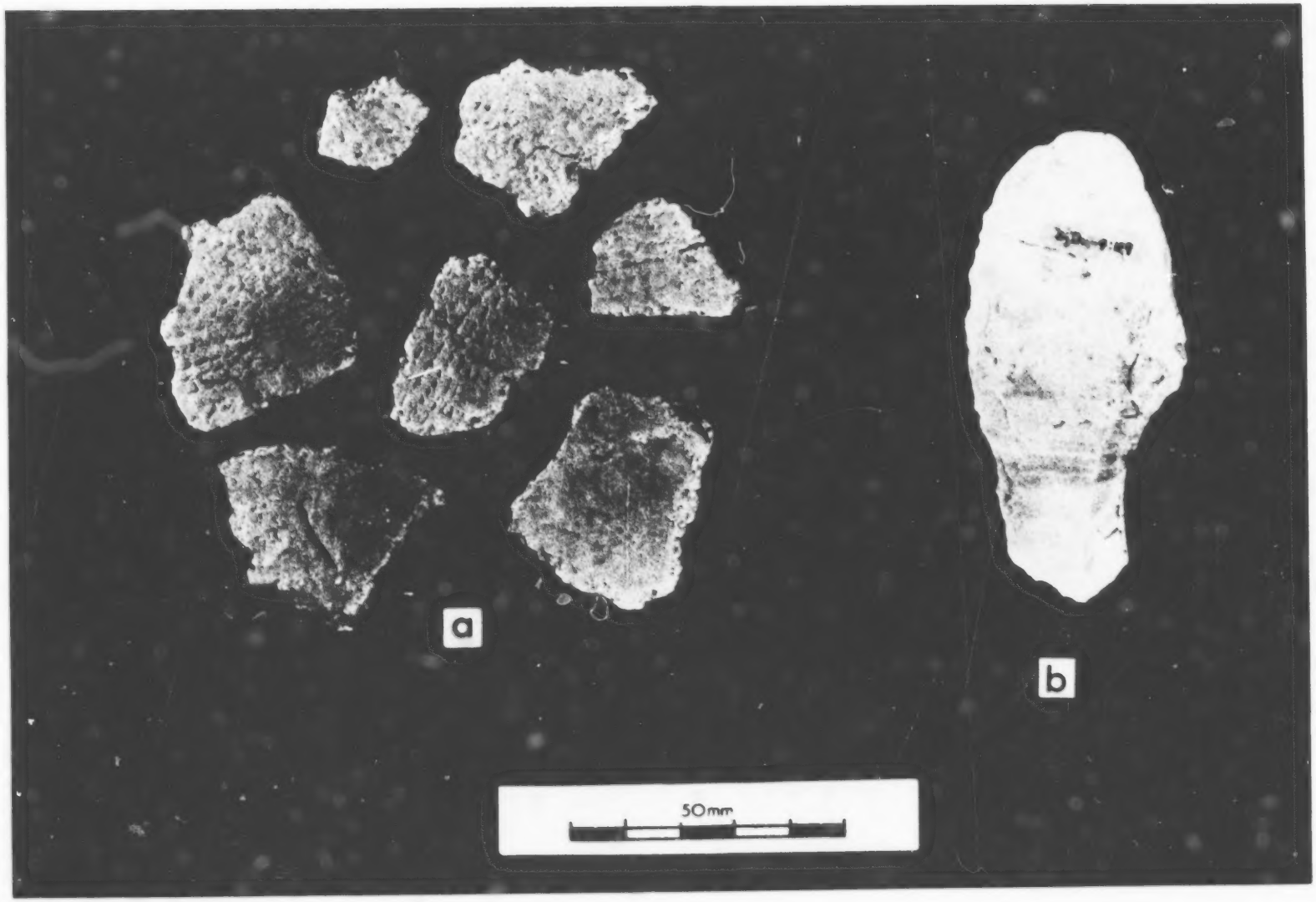

a
b
50mm

Figure 20. BkDw5, Mud Lake Stream Site Artifacts

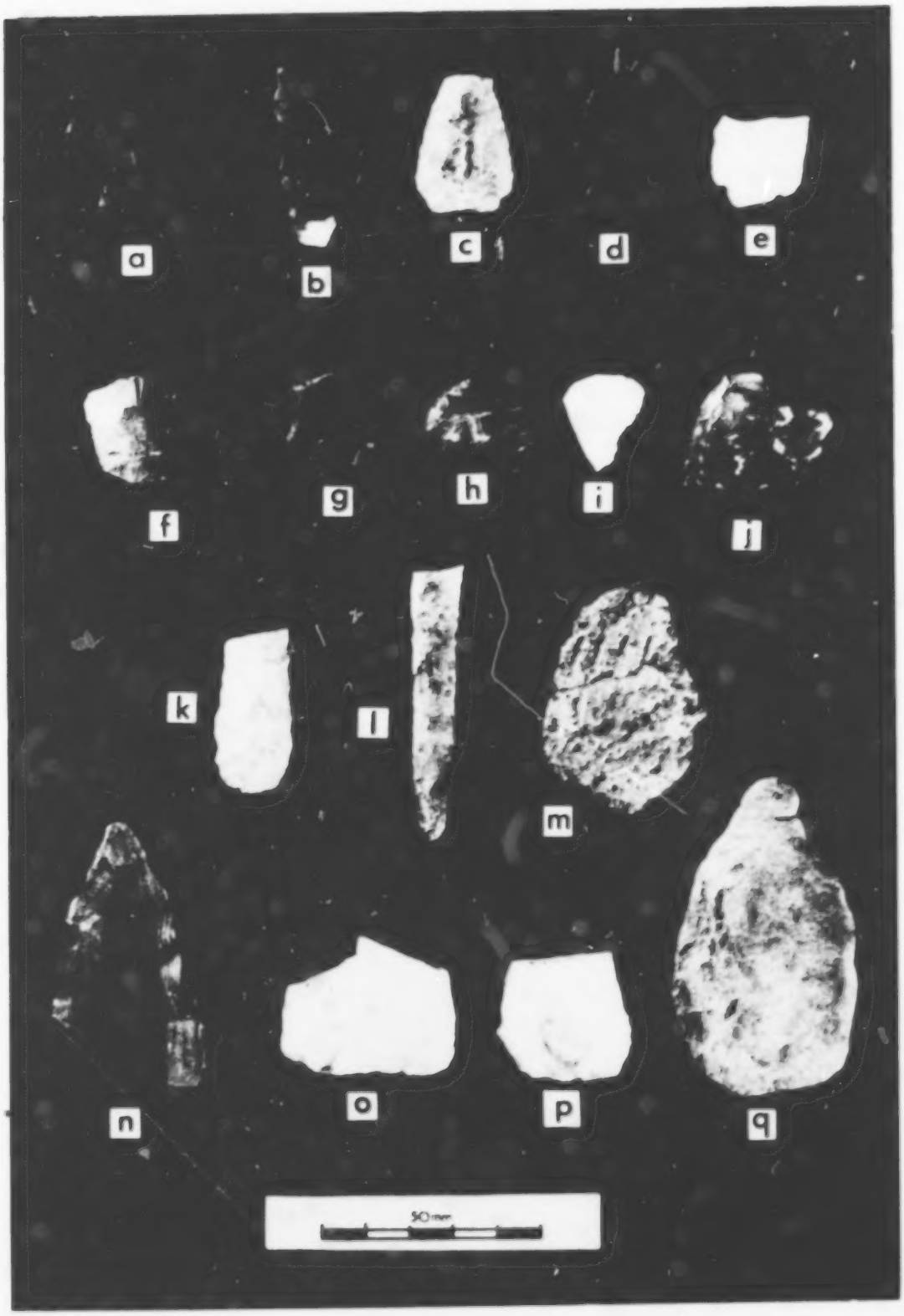

a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
50 mm

Figure 21. BkDw5, Mud Lake Stream Large Chopping Tool

Figure 22. Aireal Photo of the Mouth of Diggity Stream, Spednic Lake

POOR

QUALITY

ORIGINAL